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SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 99.)

103. NECTRIA CUCURBITULA, Tode.

On bark of *Abies balsamea*, North Elba, N. Y. (Peck.) Caespitose, erumpent, perithecia ovate-globose, papillate, $\frac{1}{4}$—$\frac{1}{3}$ millim. in diam., bright red, not collapsing, smooth; asci cylindrical, 80—90 x 6 μ; sporidia biconical or acutely elliptical, hyaline, uniseptate, uniseriate, 12—15 x 5—6 μ (14—18 x 6—7 μ, Sacc. in Syll.)

The specimen above quoted and from which these characters were drawn was sent to us as "*N. balsamea*, C. & P.," but can not be that species, which has very different sporidia and collapsed perithecia, but is evidently the *N. cucurbitula*, Tode., as described in Sylloge, II, p. 484, and illustrated in Kunze's Fungi Selecti, No. 105.

NOTE.—When the July number of the JOURNAL was printed, we did not know that this species was found in this country.

104. NECTRIA RHIZOGENA, Cke. Grev. XI, p. 108.

"Caespitose, erumpent, stromatic, orange-red, at length scarlet; perithecia subglobose, glabrous, scarcely papillate, breaking out into small groups of 10—12 together; asci cylindrical; sporidia narrowly elliptical, uniseptate, hyaline, 8—9 x 3 μ. The conidia are those of *Tubercularia*, with a rose-colored tint and 5 x 2 μ. On exposed roots of *Ulmus*, seaboard of South Carolina (Ravenel). Clusters 1 millim. in diam; perithecia one sixth millim." The specimens in Rav. F. Am., 645, show only the depressed-tuberculariform, flesh-colored stroma and conidia.

105. Nectria muscivora, Berk., in Rav. Fung. Car. I, 57. (*Nectria subcoccinea*, Sacc. & Ell., Mich. II, p. 570.)

Perithecia mostly cæspitose, bright red, subovate, small (one fifth millim.), seated mostly around the margin of the small, pale, tuberculariform stroma, which, together with its group of perithecia, is mostly less than 1 millim. in diam.; asci cylindrical, 75—90 x 8—10 μ; sporidia uniseriate, narrow-elliptical, 14—16 x 6—7 μ, yellowish-subhyaline, becoming 1-septate. On bark of living alder, West Chester, Pa. (Everhart & Haines). Distinguished from *N. coccinea* by its broader, more obtuse, yellowish sporidia and its more distinctly superficial stroma, which, in some cases at least, seems to arise from the remains of dead scale insects, which are abundant on the bark.

The above description is from the Pennsylvania specimens of *N. subcoccinea*, S. & E., which are the same as the specimens of *N. muscivora*, Berk., cited, which is, presumably, the same as *N. muscivora*, B. & Br., in Cooke's Handbk., No. 2364, though neither the Pennsylvania specimens nor those in Rav. Car. show anything of the "white lanose patches, 2 in. or more in diameter." In Ravenel's specimens, the perithecia are collapsed, the only point in which they differ from the specimens of *N. subcoccinea*.

Perithecia furfuraceous or squamulose. (*Lepidonectria*, *Sacc.*)

106. Nectria Apocyni, Pk. 26th Rep. N. Y. State Mus., p. 84.

"Cæspitose or scattered, dull red; perithecia minute, pale ochraceous and subglobose when moist, dull red, collapsed or laterally compressed and rough, with minute, whitish scales when dry; ostiola minute; spores biseriate, uniseptate, filiform, usually constricted in the middle, nucleate, .00065—.0008 in. long; conidia subhemispherical or irregular, small, pale red; spores fusiform, straight, .0005—.0006 in. long." Specimens found at Newfield, N. J., July, 1883, on dead stems of *Asclepias tuberosa*, with *Volutella flexuosa*, C. & E., had asci about 35 x 7 μ, sporidia 12—18 x 3½—4 μ, constricted at the septum and nucleate.

107. Nectria diploa, B. & C. Jour. Linn. Soc., X, p. 378. Grev., IV, p. 46, var., *diminuta*.

Perithecia cæspitose, minute, ovate, subfurfuraceous, at length collapsing, light red, parasitic on some erumpent *Valsa*?; asci subsessile, oblong-cylindrical, about 65 x 10 μ; sporidia obliquely uniseriate, oblong-elliptical, endochrome finally divided in the middle, 20—25 x 8—9 μ, hyaline or nearly so. In some of the asci, the sporidia are partially biseriate and somewhat smaller. On bark of alder. So. Ca. Ravenel. The description here given is from an examination of the specimens in Rav. Fungi Caroliniani, III, 55. In these specimens, the nuclei have disappeared. The underlying (*Valsa*)? is so completely covered by the perithecia of the *Nectria* as to be easily overlooked.

108. Nectria dematiosa, Schw. Syn. N. Am., 1424.

"Frequent on branches of *Platanus* and *Morus*, Bethlehem, Pa. Allied to *N. cinnabarina*, but much smaller. Cæspitose, erumpent, seated

on a flattened stroma; perithecia few, globose, subglabrous, red, becoming dark, indistinctly ostiolate, collapsing, covered with subpellucid dematiose hairs. The perithecia readily fall out, leaving little pits. The clusters of perithecia scarcely exceed half a line in dfameter." In Grev., IV, p. 16, the sporidia are said to be "oblong, uniseptate, slightly curved, .00085—.00057 inch long."

(To be continued.)

KELLERMANNIA, ELL. & EVRHT.

BY J. B. ELLIS AND B. M. EVERHART.

KELLERMANNIA, Ell. & Evrht.—The characters of this genus, as given on page 153 and of the species on page 154, will have to be amended. In the specimens examined at that time, only *free spores* were seen and it was taken for granted that the slender prolongation on one end of the spore was a *stipe*, when, in fact, it is an awn-like appendage proceding from the apex of the spore. The spores are sessile, or at least borne on slightly elongated cells of the proligerous layer. In the generic description, therefore, for "stipitate" read "awned" or "aristate," and in the specific description, instead of "abruptly contracted below," etc., read "abruptly contracted *above* into a slender, bristle-like awn, etc." It should also have been stated that *K. yuccægena* is the same as *Discella* (*Discula*) *anomala*, Ck. The specific name, *anomala*, was rejected as not applicable. *Kellermannia* is properly separated from *Discula* by its septate, aristate spores. The perithecia also are mostly more perfect than in *Discula*. We are indebted to Dr. H. W. Harkness for this correction and for the following two new species.

KELLERMANNIA POLYGONI, E. & E.—On dead stems of *Polygonum polymorphum*, Blue Canon, Cala. (Harkness, 3277.) Perithecia erumpent, membranaceous, of coarse, cellular structure, black, depressed-globose, ½ millim in diam., with a perforated, papillate ostiolum; spores lanceolate, 1-septate, 30—40 μ long, including the awn-like tip, and 3—4 μ thick at the rounded base, yellowish-hyaline, granular and nucleate at first, gradually contracted above the middle into the slender, nearly straight awn. The mature perithecia may be picked out entire with the point of a knife.

KELLERMANNIA SISYRINCHII, E. & E.—On *Sisyrinchium bellum*. Berkeley, Cala. (Harkness, 3017). Perithecia scattered, minute (150 μ), covered by the epidermis, subglobose, with the upper half prominent and finally collapsing, pierced above, membranaceous, of fine cellular texture and, when moist, paler than in the preceding species; spores oblong-lanceolate, yellowish-hyaline, 3-septate, 50—60 x 5—6 μ (including the awn), which occupies about half the entire length. Resembles outwardly *Leptosphæria permunda*, Ck., which was also on the specimens sent. The awn finally disappears, leaving the spore 22—30 μ long.

CATALOGUE OF LICHENS COLLECTED IN FLORIDA IN 1885--WITH NOTES.

BY W. W. CALKINS, CHICAGO, ILLINOIS.

The following species were studied and determined mostly by H. Willey, Esq., which is a sufficient guarantee of careful and correct work. This quite respectable list, the result of a very little time spent by me in connection with other pursuits, shows plainly the richness of the field in *Lichens*. Florida furnishes novelties in many departments of natural history, and no less so in her *Lichen* flora, which, however, has not, as yet, been made a special study by any one. When fully explored, we may expect to find a curious commingling of northern, southern and tropical forms, many finding here, however, their limits geographically. The question of their distribution is an interesting one yet to be solved, and while the limits are plainly definable as to the *Phanerogamia* of Florida, we know next to nothing of the lower orders in this connection. With this view, the list will serve as a basis for future labor.

1. Usnea barbata (L.) Fr.—Very common on living *Cypress* trees, in low, damp grounds.

2. Theloschistes concolor (Dicks.)—Abundant on oak and other trees.

3. Parmelia perforata (Jacq.) Ach.—Very abundant on oaks.

4. Parmelia tiliacea (Hoff.) Flœrk.—Common on *Hamamelis*.

5. Sticta aurata (Sm.) Ach.—On fallen trees among moss. Rare.

6. Physma luridum (Mont.)—Very fine. On living *Andromeda* shrubs, near water, less often on dead wood.

7. Pannaria stellata (Tuck.) Nyl.—Rare on living *Magnolia*.

8. Pannaria molybdæa (Pers.) Tuck.—Common on *Andromeda* in low grounds along with No. 6.

9. Collema nigrescens (Huds.) Ach.—Abundant on living *Andromeda*.

10. Collema aggregatum, Nyl.—Common along with No. 9.

11. Leptogium tremelloides (L. fil) Fr.—Abundant on living *Magnolia*.

12. Lecanora subfusca (L.) Ach.—On *Castanea* and other trees.

13. Lecanora subfusca, *var. distans*, Ach.—Common.

14. Lecanora atra (Huds.) Ach.—Common.

15. Lecanora varia (Ehrh.) Nyl.—Abundant on oaks.

16. Lecanora varia, *var. Cupressi*, Tuck.—Rare.

17. Lecanora punicea, Ach.—Abundant on various trees. Disks bright scarlet.

18. Lecanora flavido-pallens, Nyl.—A Cuban species. Abundant.

19. Pertusaria velata (Turn.) Nyl.—Abundant.

20. Pertusaria multipuncta (Turn.) Nyl.—Common on *Quercus*.

21. PERTUSARIA LEIOPLACA, Ach.—Abundant on *Magnolia*.

22. PERTUSARIA COMMUNIS, DC.—On *Quercus*.

23. THELOTREMA DOMINGENSE (Fee.) Tuckerm.—On elms and hickory trees. Abundant and fine.

24. THELOTREMA GLAUCESCENS, Nyl.—On a fallen tree. Rare.

25. GYROSTOMUM SCYPHULIFERUM (Ach.) Fr.—Common on various trees.

26. CLADONIA MITRULA, Tuckerum.—On earth and logs. Common.

27. CLADONIA FIMBRIATA (L.) Tr.—Abundant on rotten logs.

28. CLADONIA PULCHELLA, Schw.—Abundant along with No. 27.

29. CLADONIA RANGIFERINA, Hoffm.—Very common on earth in damp woods.

30. CLADONIA SANTENSIS, Tuckerm.—On old logs. Rare.

31. GRAPHIS POITÆOIDES, Nyl., *ined.*—On oaks. Rare.

32. GRAPHIS NITIDESCENS, Nyl., *ined.*—On *Quercus aquatica*.

33. GRAPHIS AFZELII, Ach.—Very abundant on various trees.

34. GRAPHIS SCRIPTA, Ach.—Common on various trees.

35. GRAPHIS SCRIPTA, *var. assimilis*, Nyl.—Common.

36. GRAPHIS SCRIPTA, *var. sophistica*, Nyl.—Not common.

37. GRAPHIS VIRGINALIS, Tuck., *indt.*—On small oaks. Common.

38. GRAPHIS ERISTATHIANA, Tuck., *ined.*—Common on oaks.

39. GRAPHIS ELEGANS, Ach.—Rare. On holly.

40. GRAPHIS SCULPTURATA, Ach.—Rare.

41. GRAPHIS DENDRITICA, Ach.—On *Quercus aquatica*. Common.

42. ARTHONIA CINNABARINA, Wallr.—On *Magnolia*.

43. ARTHONIA GREGARINA, Willey, *ined.*—Rare.

44. ARTHONIA OCHROPILA, Nyl.—On oak.

45. ARTHONIA TÆDESCENS, Nyl.—On holly. Common.

46. ARTHONIA QUINTARIA, Nyl., *ined.*—On *Ilex*. Very fine.

47. ANTHONIA ——— ? n. sp.—On *Ilex*, and undoubtedly new. Sent to Dr. Nylander.

48. TRYPETHELIUM VIRENS, Tuck.—Common.

49. TRYPETHELIUM CRUENTUM, Mont.—Common on various trees.

50. TRYPETHELIUM SCORIA, Fee.—Abundant on *Myrica*.

51. TRYPETHELIUM CATERVARIUM, Fee.—Rare.

52. TRYPETHELIUM CAROLINIANUM, Fee.—Common.

53. TRYPETHELIUM SCORITES, Tuck.—Abundant on holly.

54. HETEROTHECIUM LEUCOXANTHUM, Spreng.—Rather abundant on various trees.

55. HETEROTHECIUM AUGUSTINII, Tuck., *indt.*—On leaves of the Saw palmetto.

56. HETEROTHECIUM TUBERCULOSUM, *var. pachycarpum*, Flot.—On oaks. Common.

57. PYRENULA SEPTATA, Nyl.—Rare on oaks.

58. PYRENULA PUNCTIFORMIS, Ach. On *Myrica* in swamps.

59. PYRENULA PUNCTELLA, Nyl.—Rare on holly.

60. PYRENULA CINCHONÆ, Ach.—On holly. Rare.

61. PYRENULA SUBPROSTANS, Nyl.—Abundant on oaks.

62. PYRENULA NITIDA, Ach.—Common on oaks.
63. PYRENULA THELENA, Tuck.—On *Quercus virens*. Very fine.
64. PYRENULA AGGREGATA, Fee.—Very common on holly.
65. BIATORA RUSSULA, Mont.—On oaks.
66. BIATORA ATRO-GRISEA, Schw.—Rare on oaks.
67. BIATORA EXIGUA, Fr.—Rare on oaks.
68. BIATORA HYPERNULA, Nyl.
69. MYCOPERUM SPARSELLUM, Nyl.—On holly. Tropical also.
70. OPEGRAPHA VULGATA, Ach.—Common on oaks.
71. STRIGULA COMPLANATA, Fee.—On leaves of *Osmanthus*.
72. BUELLIA PARASEMA, Ach.—Very common on oaks.
73. GLYPHIS ACHARIANA, Tuck.—On oaks.

CHARLES CHRISTOPHER FROST.

BY WM. R. DUDLEY, CORNELL UNIVERSITY.

B. at Brattleboro', Vt., Nov. 11, 1805.
D. at Brattleboro', Vt., Mar. 16, 1880.

The pioneers in cryptogamic botany, in America, have been, almost without exception, professional or business men, who pursued their favorite study as an avocation. In them was developed the scientific spirit, probably in greater purity than we can ever expect to see it again. The agricultural interests had become neither sufficiently developed nor well enough organized to call on these men for a practical application of their knowledge; and, as a rule, they were eminently modest men, without even the ordinary desire for fame. The study was pursued by them, therefore, purely for a love of the knowledge gained and from an intellectual passion for investigation. Certainly this characterization must apply to the life of Mr. C. C. Frost, who described many new species of New England fungi, and whose work was always thorough, conscientious and highly respected by those who could understand and appreciate its value, viz.: his learned friends and correspondents on both sides of the Atlantic. Still, he wrote comparatively little; offers of professorships and other honors, coming altogether unsought, were declined; and he adhered throughout a long life to the trade and business to which he was bred.

Mr. Frost was of an honorable New England parentage. His father, James Frost, coming from Massachusetts when quite young, opened the first shoemaker's shop in Brattleboro'. The mother of Mr. C. C. Frost was Elizabeth, daughter of Col. Stewart, an officer in the Revolutionary war. What is now a large and flourishing town of exceptional beauty, provided with a library and fine school buildings, was, in the early part of the present century, but a country village, which had grown up near the site of the colonial Fort Dummer, and the ordinary district school furnished the only means of public instruction. We may suppose young Frost spent his winters in acquiring whatever he could from this source.

We know that he suddenly left school in his fifteenth year, for at that time he was struck a severe blow by a hot-tempered teacher, and the high-spirited lad gathered up his school books, picked up the broken ruler and carried them home as evidence of the indignity he had received and the resolution he had formed and from that day never placed himself at the mercy of any school teacher.

Although he soon entered into business with his father, he also began a course of reading and study, not for any particular end, but to satisfy the cravings of mind of a born scholar. He took up mathematics with ardor, and Hutton's mathematical series, which he had mastered at nineteen, are still on his bookshelves. He entered with equal interest into chemistry and physics, into meteorology and geology, while his collections of insects, shells, and finally his very considerable collections of plants, show the wide variety of his tastes and acquirements. Text books on all these subjects are in his library at present. He owned some important special reports and monographs in meteorology, entomology and geology, while in cryptogamic botany his library is fairly well equipped with the standard works and papers necessary to the extended study of the subject. It was probably never very fully supplied, however, for the purposes of original investigation. Beside the manuals of Berkeley and Cooke, there still remain some of the works of Persoon, Schweinitz, Fries, Greville, Nylander, De Bary and Woronin, Rabenhorst, Tuckerman, Peck and other workers in the lower cryptogamia. There are a considerable number of water-color drawings of *Boleti*, in which genus Mr. Frost was especially interested, most of them apparently copied from Krombholz and from Sowerby. There are also a number of Mr. Charles J. Sprague's exquisite pen-and-ink drawings of *Agarics*, accompanied by descriptions, sent to his friend, no doubt, to assist him in the absence of plates and authentic herbarium specimens. There are MS. descriptions of the New England fungi which he supposed to be new. Some of these, afterwards discovered to be already described, have the true specific name endorsed in pencil across them. He and his friend Sprague each purchased a valuable microscope of French manufacture, and he has many drawings and measurements of spores preserved, for supplying the deficiencies, probably, in the descriptions of the older works.

His own collections, chiefly of fungi, together with most of his important botanical works and some of his botanical correspondence, remain in the attic room, occupied by him as a study for so many years, in his house in Brattleboro'. The fungi, properly labeled, were largely put up in paper boxes, and arranged, according to their supposed affinities, on shelves about the room. Others were attached to the sheets of blank books. Unfortunately, they have been considerably disturbed by those who have called to look them over since the death of Mr. Frost, and some are in danger of being badly injured if not destroyed. Among the other papers, the writer found a manuscript catalogue of the cryptogamic specimens in Mr. Frost's own herbarium, with the locality of each added.

This catalogue covered his mosses, liverworts and fungi, and although quite full, it was impossible to ascertain its completeness without a more careful examination of the herbarium itself than could be given during a short visit.

It is said that Mr. Frost's systematic study of botany began through the advice of an eminent physician of New York, whom he consulted for a severe dyspeptic disorder. Finding that the former was fond of flowers, this physician advised him to take exercise in walking and botanizing, an hour at a time, twice each day. This regimen not only speedily altered Mr. Frost's health for the better, but he soon developed that same eager but quiet enthusiasm in the study of plants that he had shown for other sciences. It was not long before he became interested in cryptogamic botany. He made a large collection of ferns, native and foreign, which is still preserved, also one of the mosses and liverworts. Next he began to collect and study the fungi. Having obtained the ordinary English works on this subject, he sent for Fries' *Systema Mycologicum*. He found, on its arrival, that it was in Latin. He immediately procured a Latin grammar, and in six months, during the intervals of business and at night, he had learned enough Latin to easily read scientific works. In the same way, he acquired French and German, and it is said that other foreign languages, in which scientific works were written, were also read by him with comparatively little difficulty.

Mr. Frost's life was very methodical. He occupied the same store for forty-nine years, and accumulated, by thrift and good judgment, a considerable fortune; but, from a very early period, he maintained fixed daily hours for study. He regularly allowed himself a half hour for dinner, and from half past twelve till one P. M. he as regularly spent in the little attic study. He frequently went into the woods in the fresh, early morning, before business hours, and often devoted his evenings to some botanical work. Beside these hours for the study of specimens, he read much in his store, and several of the inhabitants of Brattleboro' have given the writer exactly the same reminiscence of him, viz.: that when customers called at his place of business, he almost invariably laid down a book in order to wait on them, and took it up again immediately on finishing. Every spare moment seemed to have been utilized for study. In short, his life, like that of most men, successful in the way he was, was very orderly and well arranged, and really comparatively simple, *i. e.*: Directed with considerable intensity toward comparatively few ends. Apparently, it had but two prominent aspects: First, its business side, where he was shrewd, careful and economical; second, its student side, where his accumulations were equally steady and uninterrupted. He had also strong religious convictions, and has himself said that he had not been absent from church for thirty-two years. But he steadily declined public office, and is said to have never held any of any kind. He declined to give up his business for a complete devotion to science and study. His characteristic remark, "Whatever I have acquired of

science, in my life, came through search for health and mental entertainment; science is not my profession,—shoemaking is," expresses pretty clearly the simplicity of his own theory and practice of life.

He was not communicative on his favorite studies, except to those who understood them as he did. Indeed, it has been said that he probably had more friends beyond the Atlantic, with whom he was on terms of intimacy, than he had in his native town. Notwithstanding his regular business habits, it is pleasant to think that whenever his friend Sprague, or some other congenial spirit came to see him, he dropped all his business and they entered Mr. Frost's study to spend forenoon and afternoon, for days at a time, or until their work was, for the time being, completed. Again, as showing the orderliness and respect pervading his domestic relations, this fact is stated by one of his family: Not long before his death, and when his health was failing, he called his two sons —his only children—into the room where his wife and himself were sitting and said to them that it was his wish that all his fortune, on his own death, should go to his wife, and then, in the event of her death before either of the sons, it should be equally divided between the latter. Both the parents have passed away, and all has been amicably adjusted in accordance with this simple wish, without the usual precautions of will and legal formality.

His portrait shows a face indicating substantial character. It might be considered that of a good business man, but it would no doubt be taken, by any stranger who was a good judge, as that of a genuine scholar and one strongly endowed with faculties both critical and reflective.

We have been somewhat particular in describing what may seem to be the trivial surroundings of this man's daily intellectual life, because his is probably the best representative life of that class to which he belongs and which was defined at the beginning of this article; a life in which:

> "The reward is in the doing
> And the rapture of pursuing,"

no inducement of fame seeming ever for a moment to have influenced him. The man who not only declined positions of honor in the scientific world, but is known to have repeatedly but politely declined honorary degrees or memberships of learned societies as not worth, to him, the customary fee required in case the proffer is accepted; who maintained his peculiar self-poise and individuality in all things, is a man rare in the world of science and worth consideration and study.

What were the results of this quiet, industrious, critical study for so many years? Certainly the published results must be set down as comparatively meager, as might be expected from a man of his views. Although he published several short papers, chiefly descriptions of new species of fungi, and in the TRANSACTIONS OF THE ORLEANS COUNTY SOCIETY OF NATURAL SCIENCES, a "CATALOGUE OF THE FLOWERLESS PLANTS" of northern New England, is printed (about 1871), the best resume and indeed his chief publication, is the list of mosses, liverworts, characeæ

and fungi, given under his name in the "CATALOGUE OF PLANTS GROWING WITHOUT CULTIVATION WITHIN THIRTY MILES OF AMHERST COLLEGE," by Edw. Tuckerman and Charles C. Frost, published at Amherst, by Edw. Nelson, in 1875. This is an exhaustive catalogue, with habitats, but without localities, so far as Mr. Frost's list is concerned. After a careful scrutiny of this, the following facts are obtained :

No. of Species of Musci enumerated	192	
No. of Species of Hepaticæ enumerated	47	
No. of Species of Characeæ	7	
No. of Species of Fungi (excluding Lichens)	1190	

Looking over the Fungi proper, it is found that :

The Basidiomycetes number	586	species.
The Gasteromycetes (these include 46 Myxomycetes) number	70	"
The Coniomycetes (these include 80 Uredineæ and 8 Ustilaginæ) number	160	"
The Hyphomycetes number	59	"
The Physomycetes number	9	"
The Ascomycetes (these include 25 Erysiphei)	306	"

The species with the authorship of "Frost" are sixty in number. Of these, twenty are in the genus *Boletus*, which has only forty-six species enumerated in the catalogue. In the *Agaracini*, he described thirty-two species, of which *Russula* included nine species, *Lactarius* nine and *Clavaria* three species. It will be seen that his original work was almost exclusively among the fleshy fungi. A copy of this catalogue, remaining in his collection, has several species added, but as only five years elapsed before his death, the number is not great. It will be at once seen by any botanist that the most valuable monument of Mr. Frost's work is his herbarium and collections of plants generally ; and this is the monument most likely to perish, unless care is taken at an early day to prevent it. These collections ought to be put in order by some competent cryptogamic botanist, and then they should be placed where they would receive permanent care and be available for reference, if needed. No doubt some one of the centers of botanical study in this country would be the most suitable place, although it would not be inappropriate to deposit them in some safe alcove of the handsome public library now building at Brattleboro', provided they could always have proper care in the future. Although there are not a large number of type specimens in Mr. Frost's collection, still the collection is too valuable to lose. Any one who knows how valuable are now the historical or family papers of the first and second century after the settlement of our country, to the investigator of any special topic, and also, how many of these were lost through neglect, can readily appreciate the value, both seen and unanticipated, which such local accumulations as these of C. C. Frost may have many years hence.

In closing, I wish to acknowledge the great kindness of Mr. Wells S. Frost, of Brattleboro', son of the botanist, in giving me information and free access to the collections and books ; also, indebtedness to the notes of Rev. Lucius Holmes, contributed at the time of Mr. Frost's death to a current periodical.

ERRATUM.

On page 98, in the eighth line of the description of *Nectria infusaria*, Cke. & Hk. (No. 100), the words "in a quadrisulcate manner as in," &c., with all that follows to the end of the paragraph, namely, twenty lines, has been intirely misplaced and should be cancelled, as it belongs to the description of *Nectria ochroleuca*, Schw. (No. 110.)

NEW LITERATURE.

BY W. A. KELLERMAN.

"British Pyrenomycetes, a preliminary List of Known Species." By G. Massee, Grevillea, September, 1886.

"Exotic Fungi," (from Australia, New Guinea and Columbia.) By M. C. Cooke. l. c.

"Præcursores ad Monographia Polypororum, continued." By M. C. Cooke. l. c.

"New British Fungi." By M. C. Cooke. l. c.

"The Development of the Gymnosporangia of the United States." Read before the A. A. A. S., 1886, by W. G. Farlow. Botanical Gazette, September, 1886.

This paper gives a summary account of continued experiments on the *Gymnosporangia* and connected *Roestelia*, begun by Dr. Farlow in 1880. The details of experiments carried on in the Harvard Cryptogamic Laboratory last spring by student Roland Thaxter will be given by the latter. The cultures of the spores of *Gym. biseptatum* on *Amelanchier* were followed by spermogonia and æcidia of *Ræs. botryapites*. The spores of *Gym. clavipes* (growing on *Juniperus Virginiana*), sown on *Amelanchier* and apples, produced on the latter spermogonia and on the former æcidia of *Ræs. auriantaca*. The spores of the form (*Gym. conicum*) that grows on *Juniperus Virginiana*, producing the bird's-nest distortions, developed on *Amelanchier* æcidia of the species *Ræs. cornuta*. In like manner, *Gym. clavariæformis* was shown to be connected with *Ræs. lacerata*; *Gym. macropus* is likely (but not positively determined) connected with *Ræs. penicillata*; but the cases of *Gym. Ellisii* and *Gym. globosum* did not yield to satisfactory conclusions.

"Orange-leaf Scab." F. Lamson Scribner. Read before the A. A. A. S., 1886. Botanical Gazette, September, 1886.

"The Rust of the Ash Tree." Charles E. Bessey. *American Naturalist*, September, 1886.

The *Aecidium Fraxini*, Schw., was abundant on the green ash (*F. viridis*) last year at Lincoln, Neb., also, according to Dr. Halsted, at Ames, Iowa, but this year, at both places, Dr. Bessey reports it extremely scarce. Curiously enough, the fungus at this place (Manhattan, Kans.,) was *very* abundant this year, but rather scarce in 1885.

"Revision der Hysterineen im herb. Duby." Von Dr. Rehm. Hedwegia, Juli und Aug., 1886.

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